

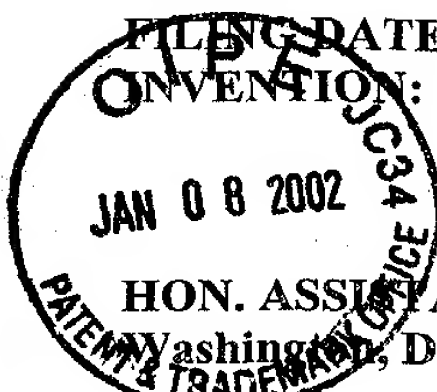
IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT:
SERIAL NO.
FILING DATE:
INVENTION:

H. Thanner
09/802,000
March 8, 2001
PIEZOELECTRIC OSCILLATOR ASSEMBLY

ATTORNEY DOCKET NO. 9794829-0048
GROUP ART UNIT: 2834
EXAMINER: not yet assigned

2834
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INFORMATION DISCLOSURE STATEMENT TRANSMITTAL LETTER

7/IDS
Hawkins
1/18/02

HON. ASSISTANT COMMISSIONER OF PATENTS
Washington, D.C. 20231

Sir:

Submitted herewith is an Information Disclosure Statement for consideration in the above-identified application. This Information Disclosure Statement is submitted:

- ☐ Within 3 months (1) of filing date of a national application; (2) of date of entry of the national stage as set forth in 37 C.F.R. §1.491 in an international application; or (3) before the mailing date of a first Office Action on the merits, whichever occurs last. (No fee is required.)
- ☒ After the mailing date of a first Office Action but before (1) mailing of a final action under 37 C.F.R. §1.113; or (2) mailing of a notice of allowance under §1.311, whichever occurs first.
 - ☐ Payment for the fee set forth in 37 C.F.R. §1.17(p) accompanies this submission; or
 - ☐ The certification specified in 37 C.F.R. §1.97(e) is made below. (No fee is required.)
- ☐ After the mailing of (1) a final action under 37 C.F.R. §1.113; or (2) a notice of allowance under 37 C.F.R. §1.311 whichever occurs first, but **before** payment of the issue fee. The certification specified in 37 C.F.R. §1.97(e) is made below. The Commissioner hereby is petitioned to consider the Information Disclosure Statement accompanying this submission. Payment for the Petition fee set forth in 37 C.F.R. §1.17(i)(1) accompanies this submission.
- ☐ The undersigned counsel for applicant(s) hereby certifies each item of information identified in the Information Disclosure Statement was first cited in a communication from a foreign Patent Office in a counterpart foreign application not more than three months prior to the filing of this Information Disclosure Statement.
- ☐ The undersigned counsel for applicant(s) hereby certifies that no item of information contained in the Information Disclosure Statement was cited in a communication from a foreign Patent Office in a counterpart foreign application, or to the knowledge of the undersigned, after making reasonable inquiry, was known to any individual designated in 37 C.F.R. §1.56(c) more than three months prior to the filing of this Information Disclosure Statement.
- ☒ A check in the amount of \$ 180.00 to cover any required fee is enclosed.
- ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Account No. 19-3140. *A duplicate copy of this sheet is enclosed for this purpose.*

Very respectfully,

SONNENSCHN NATH & ROSENTHAL

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CERTIFICATE OF MAILING

I hereby certify that this Information Disclosure Statement is being deposited with the United States Postal Service in an envelope addressed to the Assistant Commissioner of Patents at the United States Patent and Trademark Office in Washington D.C. on November 6, 2001.

JoEllen Hogan
JoEllen Hogan

01/11/2002 CCHAU1 00000045 09802000

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
INFORMATION DISCLOSURE STATEMENT

APPLICANT(S): H. Thanner DOCKET NO.: 9794829-0048
SERIAL NO.: 09/802,000 GROUP ART UNIT: 2834
DATE FILED: March 8, 2001 EXAMINER: not yet assigned
INVENTION: PIEZOELECTRIC OSCILLATOR ASSEMBLY

Hon. Assistant Commissioner for Patents
Washington, DC 20231

S I R:

In accordance with the provisions of 37 C.F.R. § 1.56, Applicants request that citation and examination of the references identified on the attached PTO-1449 form, copies of which are enclosed herewith in accordance with 37 C.F.R. §1.98, be made during the course of examination of the above-referenced application for United States Letters Patent.

I. SUBMITTED UNITED STATES PATENT REFERENCES

<u>Reference</u>	<u>Number</u>	<u>Patentee</u>	<u>Issue Date</u>
	4,639,632	Nakata	January 27, 1987

II. SUBMITTED FOREIGN PATENT REFERENCES

<u>Reference</u>	<u>Number</u>	<u>Country</u>	<u>Date of Publication</u>
	57092913	JP	June 9, 1982
	3427646	DE	February 14, 1985

III OTHER DOCUMENTS

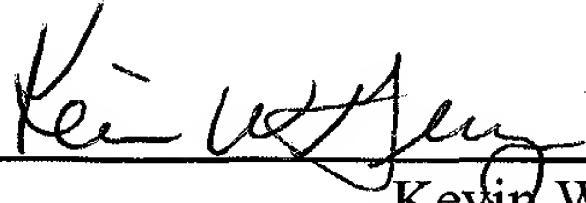
<u>Reference</u>	<u>Title/Author</u>	<u>Date of Publication</u>
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IV EXPLANATION OF RELEVANCE

The above items relate to various oscillator devices, as described in the specification on page 2.

Submitted by,



(Reg. 29,927)

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POWERED BY **Dialog**

Piezoelectric quartz resonator assembly - has conductor elements supporting quartz plate and sealed into housing made in two halves

Patent Assignee: NIHON DEMPA KOGYO CO; NIPPON DEMPA KOGYO CO

Inventors: NAKATA H; YAMAKAWA T

Patent Family

Patent Number	Kind	Date	Application Number	Kind	Date	Week	Type
DE 3427646	A	19850214	DE 3427646	A	19840726	198508	B
GB 2146839	A	19850424	GB 8418618	A	19840720	198517	
US 4639632	A	19870127	US 85789928	A	19851022	198706	
GB 2146839	B	19870401				198713	

Priority Applications (Number Kind Date): JP 84U78951 U (19840529); JP 83U115596 U (19830727); JP 83U171252 U (19831107); JP 83U198264 U (19831223); JP 83U198265 U (19831223); JP 83U198940 U (19831227); JP 83U198941 U (19831227)

Patent Details

Patent	Kind	Language	Page	Main IPC	Filing Notes
DE 3427646	A		38		

Abstract:

DE 3427646 A

The piezoelectric resonator incorporates a piezoelectric element contained in a flat, rectangular housing (5). The housing is airtight, and has a pair of projecting contact elements (7) in two opposed sides. Opposite contacts are connected by conductors with inward projecting teeth (201). These teeth support a quartz plate (8) with a number of electrodes (301-303).

The housing is made in two halves (6) which are joined along the centreline (102). There are matching grooves (104) to accommodate the contact elements (7). An insulating glue is used to fasten the two casing halves together. The electrodes on the quartz plate include contact electrodes occupying 35 deg. sectors around the edge of the plate. Narrow connection electrodes (302) join these to the driving electrodes (301).

ADVANTAGE - This quartz resonator may be automatically mfd. in large quantities.

2,3/45

GB 2146839 B

A piezoelectric resonator, comprising: a case comprising a pair of plate-like halves each of which has a

frame portion along its edge, wherein said frame portions oppose each other and adhere to each other; a piezoelectric element having driving electrodes at the central parts of its upper and lower surfaces connecting with respective conducting electrodes each provided at the edges of said upper and lower surfaces of the piezoelectric element; a pair of lead-in conductors penetrating the side portions of said case in parallel to each other, said conductors having connecting portions which project from central portions of said conductors toward each other, arcuate portions which are curved away from each other, face each other, and have their central portions integrally connected to the connecting portions, and U-shaped portions for reducing the effect of thermal conditions and mechanical vibration within said case, wherein the central portions of said arcuate portions of said lead-in conductors are attached and electrically connected to said conducting electrodes of the piezoelectric element by an adhesive agent, and the end portions of said arcuate portions are attached to a non-electrode region of said piezoelectric element by an adhesive agent.

US 4639632 A

The piezoelectric resonator comprises a case including a pair of plate-like halves each of which has a frame portion along its edge. The frame portions oppose each other and can adhere to each other. A planar piezoelectric element is provided including driving elements at central parts of its upper and lower surface, connecting electrodes extending, in opposite directions from the driving electrodes toward edges of the surfaces of the piezoelectric element, and conducting electrodes provided at parts of the edges to contact the connecting electrodes.

A pair of lead-in conductors penetrate the portions of the case parallel to each other. The conductors include narrow-width portions which project from the central parts toward one another, arcuate projections each integrally connected at a central part to free ends of associated ones of said narrow-width portions, and U-shaped portions for reducing the effect of thermal conditions and mechanical vibration on the piezoelectric element.

ADVANTAGE - Suitable for automated mounting on PCB in high packing density. (19pp)

Derwent World Patents Index

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